DEPARTMENT OF COMMERCE CIVIL AERONAUTICS ADMINISTRATION

1-2-569 Sheet 1 Revision 5 MAYY H3H-3

December 21, 1950

AIRCRAFT SPECIFICATION NO. A-2-569

Manufacturer

Mavel Aircraft Pactory Philadelphia, Ponn.

- Model MSM-3, 2 POLE

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Fuel

Engine limits

Airspeed limits

Propeller Limits

C.G. Range

Wright R-760-2, -4 or -8 built by Mavel Aircraft Fact. (Equivalent to Wright R-760E-E)

(See NOTE 2 for Lycoming engines and NOTE 3 for

P & W TIB-3 engine)

73 min. octane aviation gasoline

For all operations, 2000 rpm (235 kp) (See MOTE 1(g) for

placerd)

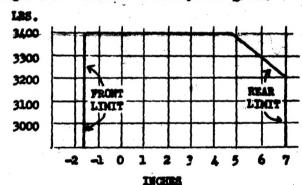
Level flight or climb 126 mph True Ind. Glide or dive 152 mph True Ind.

(Glide or dive speed may be increased to 180 mph True Indicated if Max. Weight is restricted to 2800 lbs.)

Diameter - not over 102 in, (See NOTE 1(g) for not under 100 in, (additional limitations.

(-1.6) to (*7.0) at 3200 lbs. or less (-1.6) to (*4.9) at 3400 lbs.

Streight line variation between points given-



Rapty weight C.G. range Detum Leveling Means Maximum weight No. seats Maximum bagga Punl capacity Oil capacity

Leading edge of lower wing Top surface of upper longerons in either cockpit, 3200 lbs. (See NOTES 2 and 3 for 3400 lbs.)

2 (one at *28 and one at *75)

20 lbs. (*100)

45 gals. (-11)

3-3/4 gals. (-31)

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Elevators - Up 35°; Bosa 25°
Elevator tab - Up 15°; Bosa 15°
Rudder - Right 30°; Left 30°
    Control surface movements
                                                             - Up 30°; Done 16°
                                           Mileron
    Certification basis
                                           CAR 4a.031
    Serial Nos.
                                           All eligible per MOTES 1 and 2
    Required equipment
                                          Items 1, 101, 102, 103, 201, 202, and 403.
 Propeller and Propeller Accessories

1. Propeller - adj. metal - Navy 5406AL or 5406AR hab
         and 4350F blades (See NOTE 1(e) for restrictions)
                                                                                                   86 lbs. (-80)
 Engines and Engine Accessories (Fuel and Oil Strates)

101. Carburetor air heater assy. (See NOTE 1(b) for modifications) 13 lbs.

102. Engine-driven fuel pump - Pesco B-400
    103. Hand fuel pump
    104. Fire ext. press. type (engine section)
                                                                                                              (-9)
   105. Carburetor air cleaner
106. Starter - hand crenking
   107. Engine primer
 Landing Goat
201. Bendix 30x5 febricated wheels × 202. 10x3 tail wheel
                                                                                                              (-19.5)
                                                                                                              (4183.5)
 Electrical Equipment
   301. Battery (See NOTE 1(c) for modifications)
                                                                                                              (-29)
   302. Shivel penel light (front and rear)
303. Anchor (tortis back) light
   304. Wing position lights
305. Tail light (See NOTE 1 (c) for modifications)
Interior Equipment
   401. First-eld kit
   402. Fire extinguisher - portable
   403.
           Safety belts (two) - MAP 39941
                                                                                                  (+28) & (+75)
   404. Venturi tube
NOTE 1. Prior to certification, each aircraft must comply with the following:

(a) Firewall. Firewall either to be completely replaced by, or covered
                  or backed by, one of the following materials:
                  (1) Stainless steel - .015 in. thick
                  (2) Nickel-chronium-iron alloy sheet - .015 in. thick
(3) Low carbon steel - .018 in. thick (aluminum coated or otherwise protected
                       against corresion)
                  (4) Homel metal - .018 in. thick
                  (5) Terms plate - .018 in. thick
            (b) Carburetor Air Heater. Carburetos air heater to be modified in accordance
                  with Airworthiness Bulletin No. 83.
            (c) Electrical System. Battery and battery supports to be removed or, if
                  battery is retained, a master switch, approved type tail light, and battery to be installed and structure adjacent to bettery to be painted with acid-
                                                                                                       t, and bettery
                  proof paint.
            (d) Cockpit Air Contemination. The fuselage skin openings around leading goar members and say other openings leading through the bottom of the fuselage or lower wing into the cockpits to be seeled with suitable boots or skin patches
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to prevent engine exhaust free intering the or the air with earbon monoxide.

(e) Propeller. If 9 ft. die. to 8 ft. 6 in. diameter. Pitch pointing at 42 in. etm. for 8 ft. 6 in. dia, blades - 11°. Setting may be 14.6° if max, weight is restricted to 2800 lbs. Propeller to be independ so that blades are 45° shead of the locating screw on the propeller shaft (in the direction of rotation)

Placerds reading "Intentional Spinning Prohibited" to be (f) Spin Placard.

- installed in both cockpits.

 (g) Engine Operation Placard. Placards reading "Avoid Continuous Operation above 1800 rpm or below 1680 rpms to be installed in both cockpits.
- (h) Solo Flying Placard. Placard reading "Fly Solo from Front Cockpit Only" to be installed in rear cockpit unless complete set of engine controls ere installed in rear cockpit.

(i) Instrument Marking. Tachometer to be marked at 2000 rpm. Airspeed

indicator to be marked at 126 mph and 152 mph.

(j) Fuel and Oil Markings. The words "Fuel", "73 octane", and "45 gallons" to be marked on or adjacent to feel filler cap. The words "Oil" and "3-3/4 gallons" to be marked on or adjacent to oil filler cap.

Eligible for installation of Lycoming R-660-E3, -E3A, or -E3B engine (military designation B-680-9 or R-680-13). The following are applicable to this installation:

(a) Puel - min. 87 octene svistion gesoline.

(b) Engine limits: Maximum continuous, 2200 rpm (285 hp) Take-off (one minute), 2300 rpm (300 hp)

(c) Airepood Limite: Level flight or climb 126 mph True Ind. Glide or dive 164 mph True Ind. Clide or dive

(4) Propelier - New, Std. Constant Speed, 2820 Rdb, 61355-9 Blades 1012-Al Governor.

(e) Propeller limits: Pitch settings at 42 in. sta. -Low 90, high 190;

dia, 6: 34 mat., 6: 14 min. (f) Powerplant installation - 47-10 exhaust, curtaineter heater miff, and oil tenk (6 gals.) may be installed without modification. No cowling or ngine baffles may be used unless flight tested by CAA representative

(g) Maximum weight - 3400 lbs, provided that wheels and tires having an approved rating of 1700 lbs, each (or greater) are installed. or BT-15 wheels, tires, and axles are satisfactory.)
(h) Engine mount - Satisfactory engine mounts have been substantiated by

- the following modifiers: Brandt, Perkins, and Brandt, Marysvills, Calif., Drawing No. 1. Rankin Aviation Industries, Tulare, Calif., Drawing dated February, 1947. South Delta Aviation Service, Rolling Fork, Miss., Original R-760 mount modified for Lycoming R-680 engine.
- Fuel pumps Wobble (U.A.P. Type D-2) Engine Driven (AN 4100 CE) (j) NOTE 1, parts (b), (e), (g), (i) and (j) are not applicable to this installation. Required equipment items 1, 101, 102, 103, and 201 should be replaced by corresponding items specified in this note.
- NOTE 3. Eligible for installation of Pratt and Whitney TIB-3 (R-985-AN-1 or -AN-3) engine. The following are applicable to this installation:

a) Fuel - minimum 87 octane aviation gasoline (b) Engine limits - Maximum continuous, 37.5 in. Hg., 2300 rpm (450 hp)
Take-off (one minute), 37.5 in. Hg., 2300 rpm (450 hp)
With these power ratings, a minimum of 67g gals. of fuel capacity must be provided except in Restricted Category aircraft (certificated prior to October 11, 1950) in which case the airplane must be placerded to be re-fueled for each hour of operation.

- (c) Airspeed limits Level flight or climb 100 mph True Ind. Alide or dive
- (1) Hem. Stday two-position; 2830 heby 6166 and 2 to 18 blades 2 to 25 and 25 a (d) Propeller Dismeter - not over 108 in., not under 100 in. in and Low pitch limit at 42 in. R. 13.50 High pitch limit at 42 in. R. 18.00

(2) Western Propeller Co. model W2-1-9'-0" (ground adjustable) Dismeter - not over 108 in., not under 106 in. Pitch setting at 42 in. R. 12.5°.

(3) Ham. Std., 5406 hub with 1945-6 blades, 101-12 blades, 3301 blades or A3A1-12 blades

Diameter with 101-12 blades - not over 108 in., not under 100 in. Pitch setting at 42 in. R. 12.50

Diameter with 1945-6, 3301 or A3A1-12 blades - not over 108 in.,

not under 106 in. Pitch setting at 42 in. R. (3301 blades) 12.5° Pitch setting at 42 in. R. (A3A1-12 blades) 12.5° Index A3A1-12 propeller at 00 to crank throw Pitch setting at 42 in. R. (1945-6 blades) 13.3° (e) C.G. range - (-1-6) to (+4.9) at 3400 lbs.

(f) Powerplant installation: BT-13 exhaust collector, carburetor heater muff, oil tank, oil cooler (Model U.A.P. U-3170-W-D5) and air cleaner may be installed provided the heater muff is suitably modified to insure adequate heat rise. No outside cowling or engine baffles may be used unless flight tested by CAA representatives.

(g) Maximum weight - 3400 lbs. provided that wheels and tires having an approved rating of 1700 lbs. each (or greater) are installed. (BT-13 or BT-15 wheels, tires and axles are satisfactory.) (For Restricted Category take-off weight for airplanes certificated prior to October 11, 1990, see NOTE 4.)

(h) Engine mount - Satisfactory engine mounts have been substantiated by the following modifiers.

(1) March Aviation Co., P. O. Box 1031, Passage, Ariaces. Dug. No. MA-3.

(2) Albert D. Waite, 3133 McKinley Blwd., Secremento, Calif. Dwg. No. 1

(3) Quick Flying Service, 2427 E. Buchenen St., Phoenix, Arisona. Dwg. No. Q98583

(4) Goettl's Metalcraft Co., 2431 E. Bachanan St., Phoenix, Arisona Dwg. No. G2352M

(1) Fuel pumps -

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Engine-driven Chandler Evens, Type F (AM4100)

(2) Hand wobble model U.A.P. D-3

- (j) NOTE 1 parts (b), (e), (g), (h), (i) and (j) are not applicable to this installation.
- 101E 4. Model M3N-3 aircraft which are eligible for 3400 lbs. and were certificated in the Restricted Category prior to October 11, 1950, may continue to be operated with the following limitations with the engines listed in NOTES 2 or 3:

(a) Maximum take-off weight 3740 lbs. Maximum landing weight 3400 lbs. "Maneuvering speed at maximum weight 114 mph

(-1.6) to (+4.9) C.G. range

(b) The following placards must be in full view of the pilot:

(1) ""Maneuvering speed at maximum (2) "Intentional spins prohibited." " "Maneuvering speed at maximum weight not to exceed 114 mph."

All original certification in the Restricted Category after October 11, 1950, must be in accordance with CAR and CAM 8.

" Airplanes with "Level flight or climb" speed less than 114 mph should have manauvering" speed reduced to correspond with "level flight or climb" speed.

DEPARTMENT OF COMMERCE CIVIL AERONAUTICS ADMINISTRATION

1-2-569 Sheet 1 Revision 5 MAYA 131-3

December 21, 1950

AIRCRAFT SPECIFICATION NO.

Manufacturer

Maval Aircraft Factory Philadelphia, Penn.

I - Model N3M-3, 2 POLE

Ingine

Pool

Engine limits

Airepood limits

Propeller limits

C.G. Range

Wright R-760-2, -4 or -8 built by Mavel Aircraft Fact.
(Equivalent to Wright R-760E-T)
(See MOTE 2 for Lycoming engines and MOTE 3 for

P & W TIB-3 engine)

73 min. octans aviation gasoline

For all operations, 2000 rpm (235 hp) (See MOTE 1(g) for

placard)

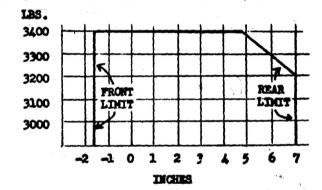
Level flight or climb 126 mph True Ind. 110 KTS.

Glide or dive 152 mph True Ind. /32

(Glide or dive speed may be increased to 180 mph True Indicated if Max. Weight is restricted to 2800 lbs.) Diameter - not over 102 in. (See NOTE 1(g) for not under 100 in. (additional limitations.

(-1.6) to (+7.0) at 3200 lbs. or less (-1.6) to (+4.9) at 3400 lbs.

Straight line variation between points given.



Empty weight C.G. range Detun Leveling Means Maximum weight No. seats Maximum baggage Fuel especity Oil capacity

Hone Leading edge of lower wing Top surface of upper longerons in either cockpit. 3200 lbs. (See NOTES 2 and 3 for 3400 lbs.) 2 (one at +28 and one at +75) 20 lbs. (+100) 45 gals. (-11) 3-3/4 gals. (-31)

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- 07 300; Name 250

- Up 150; Boom 150

- Right 300; Left 300

- Up 300; Down 180
   Control surface movements
                                    Elevators
                                    Elevator tab
                                    Rudder
                                    Mileron
   Certification basis
                                    CAR 4a.031
   Serial Nos.
                                    All eligible per NOTES 1 and 2
                                    Items 1, 101, 102, 103, 201, 202, and 403.
   Required equipment
Propeller and Propeller Accessories

1. Propeller - adj. metal - Navy 5406AL or 5406AR hab
       and 4350F blades (See MOTE. 1(e) for restrictions)
                                                                                    86 lbs. (-80)
Engines and Engine Accessories (Fuel and Oil System)
   101. Carburetor air heater assy. (See NOTE 1(b) for modifications) 13 lbs.
   102. Engine-driven fuel pump - Pesco R-400
   103. Hand fuel pump
   104. Fire ext. press. type (engine section)
                                                                                              (-9)
   105. Carburetor air cleaner
   106. Starter - hand cranking
   107. Engine primer
Lending Gear
   201. Bendix 30x5 fabricated wheels
                                                                                              (-19.5)
  202. 10x3 tail wheel
                                                                                              +183.5)
Electrical Equipment
   301. Battery (See NOTE 1(c) for modifications)
  302. Suivel panel light (front and rear)
303. Anchor (turtle back) light
  304. Wing position lights
  305. Tail light (See NOTE 1 (c) for modifications)
Interior Equipment
  401. First-aid kit
  402. Fire extinguisher - portable
         Safety belts (two) - MAF 39941
  403.
                                                                                    (+28) & (+75)
  404.
         Venturi tube
MOTE 1. Prior to certification, each aircraft must comply with the following:

(a) Firewall. Firewall either to be completely replaced by, or covered
               or backed by, one of the following materials:
               (1) Stainless steel - .015 in. thick
                (2) Nickel-chromium-iron alloy sheet - .015 in. thick
               (3) Low carbon steel - .018 in. thick (aluminum coated or otherwise protected
                    against corresion)
                  Morel metal - .018 in. thick
               (4) Monel motel - .010 in. thick
(5) Terms plate - .018 in. thick
          (b) Carburetor Air Heater. Carburetor air heater to be modified in accordance
               with Airworthiness Bulletin No. 83.
           (c) Electrical System. Battery and battery supports to be removed or, if
               battery is retained, a master switch, approved type tail light, and battery to be installed and structure adjacent to battery to be painted with acid-
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(d) Cockpit Air Contemination. The fuselage skin openings around landing gear numbers and any other openings leading through the bottom of the fuselage or lower wing into the cockpits to be sealed with suitable boots or skin patches

proof paint.

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to prevent engine exhaust from antelling the cockpits and confernmeting the air with cerbon monoxide.

(e) Propeller. If 9 ft. dia. propeller is installed, it should be reduced to 8 ft. 6 in. diameter. Pitch setting at 42 in. sts. for 8 ft. 6 in. dia. blades - 110. Setting may be 14.6 if max. weight is restricted to 2800 lbs. Propeller to be indexed so that blades are 450 ahead of the locating screw on the propeller shaft (in the direction of rotation)

(f) Spin Placard. Placards reading "Intentional Spinning Prohibited" to be

installed in both cockpits.

(g) Engine Operation Placard. Placards reading "Avoid Continuous Operation above 1800 rpm or below 1680 rpm" to be installed in both cockpits.

(h) Solo Flying Placard. Placard reading "Fly Solo from Front Cockpit Only" to be installed in rear cockpit unless complete set of engine controls are installed in rear cockpit.

(i) Instrument Marking. Tachometer to be marked at 2000 rpm. Airspeed indicator to be marked at 126 mph and 152 mph.

- (j) Fuel and Oil Markings. The words "Fuel", "73 octame", and "45 gallons" to be marked on or adjacent to fuel filler cap. The words "Oil" and "3-3/4 gallons" to be marked on or adjacent to oil filler cap.
- NOTE 2. Eligible for installation of Lycoming R-680-E3, -E3A, or -E3B engine (military designation R-680-9 or R-680-13). The following are applicable to this installation:

(a) Fuel - min. 87 octane aviation gasoline.

(b) Engine limits: Maximum continuous, 2200 rpm (285 hp) Take-off (one minute), 2300 rpm (300 hp)

(c) Airspeed limits: Level flight or climb 126 mph True Ind. Glide or dive 164 mph True Ind.

(d) Propeller - Hem. Std. Constant Speed, 2B20 Hub, 61351-9 Blades, 1012-Al Governor.

(e) Propeller limits: Pitch settings at 42 in. sta. -Low 9°, high 19°: dia. 8' 3" max., 8' 1" min.

(f) Powerplant installation - MT-10 exhaust, carburetor heater mmff, and oil tank (6 gals.) may be installed without modification. No cowling or engine baffles may be used unless flight tested by CAA representatives.

(g) Maximum weight - 3400 lbs. provided that wheels and tires having an approved rating of 1700 lbs. each (or greater) are installed. (BT-13

or BT-15 wheels, tires, and axles are satisfactory.)
(h) Engine mount - Satisfactory engine mounts have been substantiated by the following modifiers: Brandt, Perkins, and Brandt, Marysville, Calif., Drawing No. 1. Rankin Aviation Industries, Tulare, Calif., Drawing dated February, 1947. South Delta Aviation Service, Rolling Fork, Miss., Original R-760 mount

modified for Lycoming R-680 engine.

- Fuel pumps Wobble (U.A.P. Type D-2) Engine Driven (AN 4100 CE)
 NOTE 1, parts (b), (e), (g), (i) and (j) are not applicable to this installation. Required equipment items 1, 101, 102, 103, and 201 should be replaced by corresponding items specified in this note.
- NOTE 3. Eligible for installation of Pratt and Whitney TlB-3 (R-985-AN-1 or -AN-3) engine. The following are applicable to this installation:

Fuel - minimum 87 octane aviation gesoline

(b) Engine limits - Maximum continuous, 37.5 in. Hg., 2300 rpm (450 hp) Take-off (one minute), 37.5 in. Hg., 2300 rpm (450 hp) With these power ratings, a minimum of 67g gals. of fuel capacity must be provided except in Restricted Category aircraft (certificated prior to October 11, 1950) in which case the airplane must be placarded to be re-fueled for each hour of operation.

- (c) Airspeed limits Level flight or climb 100 mph True Ind. 120 mph True Ind. Glide or dive
- (d) Propeller (1) Ham. Std., two-position, 2D30 hub, 6101A-12 to -18 blades Diameter - not over 108 in., not under 102 in. Low pitch limit at 42 in. R. 13.50 High pitch limit at 42 in. R. 18.00

(2) Western Propeller Co. model W2-1-9'-0" (ground adjustable) Diameter - not over 108 in., not under 106 in. Pitch setting at 42 in. R. 12.5°.

(3) Ham. Std., 5406 hub with 1945-6 blades, 101-12 blades, 3301 blades or A3A1-12 blades

Diameter with 101-12 blades - not over 108 in., not under 100 in.

Pitch setting at 42 in. R. 12.5° Diameter with 1945-6, 3301 or A3A1-12 blades - not over 108 in.,

not under 106 in. Pitch setting at 42 in. R. (3301 blades) 12.50 Pitch setting at 42 in. R. (A3A1-12 blades) 12.50 Index A3A1-12 propeller at 0° to crank throw Pitch setting at 42 in. R. (1945-6 blades) 13.3°.
(e) C.G. range - (-1-6) to (+4.9) at 3400 lbs.

(f) Powerplant installation: BT-13 exhaust collector, carburetor heater muff, oil tank, oil cooler (Model U.A.P. U-3170-W-D5) and air cleaner may be installed provided the heater must is suitably modified to insure adequate heat rise. No outside cowling or engine baffles may be used unless flight tested by CAA representatives:

(g) Maximum weight - 3400 lbs. provided that wheels and tires having an approved rating of 1700 lbs. each (or greater) are installed. (BT-13 or BT-15 wheels, tires and axles are satisfactory.) (For Restricted Category take-off weight for airplanes certificated prior to October 11, 1950, see NOTE 4.)

(h) Engine mount - Satisfactory engine mounts have been substantiated by the following modifiers:

(1) Marsh Aviation Co., P. O. Box 1031, Phoenix, Arisona. Dwg. No. MA-3.

(2) Albert D. Waite, 3133 McKinley Blvd., Sacramento, Calif. Dwg. No. 1

(3) Quick Flying Service, 2427 E. Buchanan St., Phoenix, Arizona. Dwg. No. Q985N3

(4) Goettl's Metalcraft Co., 2431 E. Buchanan St., Phoenix, Arisona Dwg. No. G2352M

(1) Fuel pumps -

1) Engine-driven Chandler Evans, Type F (AN4100)

2) Hand wobble model U.A.P. D-3

- (j) NOTE 1 parts (b), (e), (g), (h), (i) and (j) are not applicable to this installation.
- Model N3N-3 aircraft which are eligible for 3400 lbs. and were certificated in the MOTE 4. Restricted Category prior to October 11, 1950, may continue to be operated with the following limitations with the engines listed in NOTES 2 or 3:

(a) Maximum take-off weight 3740 lbs. Maximum landing weight 3400 lbs. *Maneuvering speed at maximum weight 114 mph (-1.6) to (+4.9) C.G. range

(b) The following placards must be in full view of the pilot:

* "Maneuvering speed at maximum weight not to exceed 114 mph."

(2) "Intentional spins prohibited."

All original certification in the Restricted Category after October 11, 1950, must be in accordance with CAR and CAM 8.

* Airplanes with "Level flight or climb" speed less than 114 mph should have "maneuvering" speed reduced to correspond with "level flight or climb" speed.

. . END . .